Council for Watershed Health EJSG Work Plan

I. Project Title and Project Purpose Statement

Project Title:

Equity for Disadvantaged Communities: Novel Geospatial Methodologies for California Water and Climate Funding

Executive Summary:

This work will strengthen how the state of California distributes public funding for water infrastructure and climate mitigation and adaptation to benefit underserved communities. Building on other completed and ongoing work, we will engage with environmental justice advocates, community members, and public officials to show how more effective tools can empower communities to seek, and then successfully receive public investments.

California uses the term "disadvantaged community" in several contexts related to public investments in infrastructure. These communities are identified as being low income or having significant exposure to environmental hazards. Through previous work, and engagement with our peers across the state, Council for Watershed Health knows that how a "community" is identified for engagement has a large impact on the success of the engagement, and how resources are later allocated. This is an imperfect system. The core of the proposed project is to improve techniques for identifying communities, particularly those disadvantaged communities that suffer from environmental injustices. This will assure that the communities most in-need are able to engage with, and benefit from, public investments.

This is not just an academic exercise. In the next ten years California will invest as much as $10 billion in water and climate programs and projects. In 2014 California voters authorized the sale of $7.5 billion in bonds for water infrastructure projects. The proceeds of carbon credit trading auctions through California's AB32 will accumulate into the billions as well. In both cases, the state legislature and California voters have earmarked portions of these resources to directly benefit disadvantaged communities.

This project is related to the resources California spends to meet its responsibilities under the Clean Water Act, the Safe Drinking Water Act, and the Clean Air Act. Therefore, the project aligns well with the goals of the EJSG.

II. Environmental, Public Health and Community Climate Resiliency (if applicable) Information about the Affected Community

Across California, the challenges of climate change, infrastructure decline, and lack of public investments are impacting disadvantaged communities. In fact, whether the issues

are related to clean drinking water, drought, flash flooding, or increased heat, it is understood that underserved communities will suffer disproportionate impacts from the changing climate. California has set out to address these challenges by strengthening engagement, building capacity, and empowering underserved communities. Our project will develop better tools for identifying and engaging with communities to strengthen decision-making and resource distribution. One outcome will be community members more able to influence and effectively draw available resources.

Currently, California defines a disadvantaged community as one in which 80% of the households fall below the statewide median household income. Based on California's definition, 32% of the population, or about 12 million people, qualify as living in a disadvantaged community, as defined by census tracts. Of those, about 4 million live in the greater Los Angeles area.

Yet, we know that disadvantaged communities in California are very diverse. To describe them in sweeping terms will undoubtedly leave some out. Many economically distressed areas, located in the Central Valley, Northern California, and the Sierra lack access to safe drinking water, adequate health care, and often suffer from health impacts of agricultural runoff. Some of these have been surviving on trucked-in and bottled water, as consequence of California's drought and an inadequate water infrastructure. They also may suffer from inadequate wasterwater treatment facilities.

Alternatively, the highly dense disadvantaged communities in Greater Los Angeles and the San Francisco Bay Area for the most part do have access to clean drinking water, but instead suffer from a lack of open space, exposure to toxic hazards, poor air quality, localized flooding, and poor surface water quality.

Across the state, the effects of climate change—whether heat, drought, or coastal change—are impacting all communities. Residents of disadvantaged communities, however, have fewer resources with which to respond to these challenges.

III. Organization's Historical Connection to the Affected Community

Council for Watershed Health (CWH) has worked to improve environmental conditions for communities in Greater Los Angeles since its founding in 1996. These communities include about one-quarter of California's population, and are home to just over one-third of the State's population living in disadvantaged communities—about 4 million people. Following are some example engagements we have successfully undertaken:

Compton Creek Watershed Management Plan (2003) was developed by CWH in collaboration with many community and related agency representatives. Our relationship with the communities in the Compton Creek Watershed is ongoing as we continue to develop, seek funding for, and coordinate projects that support the goals of the watershed management plan.

Elmer Avenue Neighborhood Retrofit (2010) and Elmer Paseo (2013), our award-winning green infrastructure demonstration projects, were supported by and brought benefits to a disadvantaged community in Los Angeles. These projects in particular emphasize community engagement and the community members were our most critical partners in the success of Elmer Avenue.

Council for Watershed Health is a member of the Leadership Committee and signatory to the Greater Los Angeles County Integrated Regional Water Management Group (GLAC IRWM). CWH Executive Director Nancy Steele was among the founders of the GLAC IRWM Disadvantaged Community Committee. The Leadership Committee asked CWH to conduct the Disadvantaged Community Outreach Evaluation Study and we were awarded funding by California Department of Water Resources. This work provided meaningful guidance to the state and water agencies on how to more effectively identify and engage with communities to assure that projects were bringing needed improvements. Through this Study we engaged with five discrete communities within the region to produce over twenty project concepts that are now being considered for implementation. This Study also uncovered the need for a more effective tool to locate disadvantaged communities with whom engagement can take place, thus leading to the proposal before you.

Since the conclusion of the Study we have been engaged with six other groups throughout California that had the same type of grants. We were awarded a grant from the Switzer Foundation for a convening to identify next steps. CWH and CalTrout, with other partners, assembled the Disadvantaged Community Visioning Workshop in December 2014. This facilitated event brought together the seven grantees, other environmental justice advocates, and representatives of several State agencies and the legislature to consider how these projects can make fundamental changes to policy and practice in California. Department of Water Resources expects to include recommendations from the Workshop to be included in the Integrated Regional Water Management Strategic Plan that is currently under development.

IV. Project Description

Environmental injustices in underserved populations are a well-researched challenge. In California, both water and climate-related funding include set-asides, by law, to provide benefits to disadvantaged communities. These funding programs seek to assure that disadvantaged communities participate in the identification, prioritization, and implementation of projects that address environmental and community problems. Fundamental to these policies is a mechanism for identifying communities, which has to-date defaulted to using US Census boundaries. Despite significant progress achieving a better understanding of environmental and social determinants related to environmental

injustices, there has been little focus on how to properly describe communities in order to bound the awarding of funding or understand determinants of success.

Two existing tools are currently used to characterize which communities are disadvantaged. Department of Water Resources has developed a DAC Mapping Tool[1] that defaults to census tracts. A DAC is is defined by a household income below 80% of the statewide median household income (now about $48,000 annually). California Environmental Protection Agency also uses census boundaries, but has a multi-indicator tool, CalEnviroscreen, that helps uncover accumulated environmental hazards facing communities. In both cases the tools suggest that census boundaries define a community—inside the tract you are in the community, outside the tract you are out of the community.

Our previous work[2], mirroring an extensive academic literature, discovered that census tracts do not properly describe communities. How people live and work, and imagine themselves belonging to communities does not match the census boundaries. This causes engagement efforts to miss critical stakeholders, remain blind to community characteristics, and often miss critical needs for lack of asking the appropriate questions. Further, as projects are conceived and constructed, they often are poorly aligned with community needs, or not used or usable by the community for which they were ostensibly completed.

This work will achieve a next step recommended in the Disadvantaged Community Outreach Evaluation Study.[3] Further, the "Disadvantaged Community Visioning Workshop," held in December 2014, which we co-organized and which was supported by Department of Water Resources, also called for this effort. Participants, including environmental justice advocates, such as Environmental Justice Coalition for Water, and state agency staff at the Department of Water Resources and State Water Resources Control Board, agreed this project is an important next step.

Our project will have two components: engagement and research.

Engagement: we will engage with community members from previous work, to share our project concept, receive feedback, and answer questions. Having several committed community advisors who can help us evaluate our conclusions is critical to our project, and identifying these people will take place during this early engagement. We will align

[1] http://www.water.ca.gov/irwm/grants/resourceslinks.cfm

[2] Antos, N., Kenefick, A., and Steele, N. Disadvantaged Community Outreach Evaluation Study: An analysis of technical assistance and outreach methods. Los Angeles: Council for Watershed Health, 2013

[3] *ibid*

ourselves with the Disadvantaged Community Coordinator, employed by the Leadership Committee of the GLAC IRWM group. We will also re-engage with staff at Department of Water Resources and California EPA about the project, to receive comments and prepare them to receive and support our final products.

We will engage with Dr. Regan Maas at California State University Northridge Department of Geography and will select a geography student as an intern at the CWH. CSU Northridge is the perfect partner on this task because of their deep experience with geospatial technology and Dr. Maas' significant work on geospatial methods. We feel it is important to commit over one-third of our budget to supporting the student, as this pilot project will serve as a significant educational experience. Northridge, too, has a strong commitment to service, and serves a very diverse community of more than 40,000 students. As part of our commitment to CSUN, we will prepare and deliver one or more lectures to a class taught by Dr. Maas to increase awareness, knowledge, and skills in students.

Research: The student intern, working with technical and programmatic staff at CWH and under the supervision of Dr. Maas, will produce a literature review and evaluate three existing geospatial techniques for identifying communities for whom engagement about and implementation of water- and climate-related infrastructure is incentivized by policy. In the first existing technique, Disadvantaged Communities, described in the California Public Resources and Water codes, are designated by Department of Water Resources using US Census boundaries (http://www.water.ca.gov/irwm/grants/resourceslinks.cfm). The CalEPA Office of Health Hazard Assessment created the second technique, CalEnviroScreen 2.0 (http://oehha.ca.gov/ej/ces2.html), a geospatial tool that uses US Census boundaries to designate communities that experience environmental injustices (with 21 indicators of environmental or social factors).

A third geospatial technique for community identification will be compared to the two existing techniques described above. This method uses a max-p regionalization technique for delineating neighborhoods, which is less constrained by census boundaries and considers the nature and context of neighboring areas when constructing regions.[4] This is in contrast to existing techniques which rely solely on pre-existing boundaries for aggregating population data and which are blind to neighboring contexts. This technique specifically aims to maximize within-group homogeneity, answering a common critique of using census boundaries. This technique is also highly data driven, where the shape of the neighborhood region is dictated by the data itself.

[4] Duque, J. C., Anselin, L., & Rey, S. J. (2012). The Max-P-Regions Problem. Journal of Regional Science 52(3): 397-419.

We expect that this max-p regionalization method will produce a more robust and useful delineation of communities. We see this as a dynamic tool, which can be regularly updated, and implemented within the two existing systems in California policy. Through our engagement with community members and agency staff, we foresee an outcome where California uses this as the instrument to make the engagement with communities and the apportionment of resources more effective, therefore improving the health and wellbeing of the community members.

With the literature review and findings of the modeling in-hand, we will re-engage with community members, agency staff, and specific members of the State Legislature to share our findings. We will publish a final report, which will be circulated among stakeholders. We will maintain specific engagement with the staff at California EPA who work with the CalEnviroscreen tool, who are interested in our conclusions and could benefit from our results.

Finally, the project will be highlighted as part of a CWH Watershed Symposium. These half-day events draw members of the public, agency staff, students, academics, business leaders, non-profit organizations, and elected members of government. Each symposium focuses on a theme, and provides a venue for challenges to be discussed. This symposium, partially supported by the grant but also relying on sponsors, ticket sales and fundraising by Council staff, will bring these findings forward alongside other issues of public investments for disadvantaged communities.

V. Organizational Capacity and Programmatic Capability

The Council for Watershed Health is Southern California's trusted center for watershed research and analysis, uniquely able to influence and inform policy through convening forums and trainings and conducting applied research that is reliably fair, objective and rooted in science. Established as a 501(c)3 non-profit in 1996, the Council drives an inclusive process to preserve, restore, and enhance the economic, social, and ecological health of our watersheds through applied research, education, and planning. The Council's 2014-2015 budget is approximately $2.3 million with a staff of 14; each year the Council plays host to 6-10 college student interns; past interns have come to us from Occidental College, Clark University, Colorado School of Mines, Pomona College; University of California, Los Angeles; and University of Southern California.

Disadvantaged Community Outreach Evaluation Study: This study, published in 2013, was completed under an agreement between the Council and the California Department of Water Resources (DWR) with funding from Proposition 84: The Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006. The Council conducted this study on behalf of the Greater Los Angeles County Integrated Regional Water Management (GLAC-IRWM) Group with

major funding provided by the California Department of Water Resources, additional funding provided by the GLAC-IRWM Group, and in-kind technical services provided by the US Army Corps of Engineers.

Los Angeles Basin Water Augmentation Study (WAS): Since 2000, the Council has led the long-term WAS, in partnership with local, state, and federal agencies and organizations, with major support from the U.S. Department of Interior Bureau of Reclamation. This research project provides the basis for making a definitive determination on the benefits and the practicality of implementing a broad-based approach to stormwater infiltration within the Los Angeles Region. Monitoring results of the WAS found no trends indicating significant degradation of groundwater quality from the infiltration of stormwater. Based on these research results, the Council's partners authorized moving forward on the demonstration phase of the WAS. In June 2010, partners cut the ribbon on phase I of the Elmer Avenue Neighborhood Retrofit, a one-block transformation of a neighborhood in underserved Sun Valley (Los Angeles) from a flood-prone street to one that captures and infiltrates more water than resident use. In 2013 we completed the 2nd phase, transforming a blighted alleyway to a beautiful walkway that captures and infiltrates run-off.

Watershed Monitoring Programs: The Council manages the watershed-wide monitoring programs on the Los Angeles River (for permittees Los Angeles and Burbank) and San Gabriel River (for permittee Los Angeles County Sanitation Districts). These programs assess the aquatic habitat and water quality throughout the watersheds with monitoring geared to answer questions that could be summarized as: "are the beneficial uses being met?"

Watershed Assessment Framework: In 2008-2010 the Council led a multi-partner project, funded by the California Department of Water Resources to develop a Southern California Watershed Assessment Framework, which included a pilot assessment of the Arroyo Seco Watershed. The Framework was derived from an EPA Science Advisory Board report[1], and has since been incorporated in other projects within California including the Department of Water Resources Water Plan Update 2013.

In 2012 the Council worked with the Santa Ana Watershed Project Authority to adapt the watershed assessment framework to produce indicators of sustainability within the Santa Ana watershed and to provide performance metrics for the One Water One Watershed 2.0 IRWM plan for the Santa Ana Watershed.

VI. Qualifications of the Principal Investigator or Project Manager

Mike Antos, Programs Director with the Council for Watershed Health, will serve as Project Manager. For the past seven years, Mike has supervised projects related to integrated water management, disadvantaged community engagement, and assessment of watershed health. He supervised and was principal author of the Disadvantaged Community Outreach Evaluation Study (2013), and serves on the planning committee for

the Disadvantaged Community Visioning Workshop (2014). He is an alternate on the Greater Los Angeles County Integrated Regional Water Management Leadership Committee, and works closely with environmental justice advocates across California. Mike's training in geospatial tools and engagement with state and local policy for water management supports his current focus on adaptive management approaches to sustaining social, economic, and environmental health in urban Mediterranean-climate watersheds.

For the past four years, Mike has focused on building collaborative programs on stakeholder engagement, environmental justice issues, and environmental health disparities to inform policymakers and engage impacted communities. Under Mike's guidance, Council programs are designed to strengthen scientific understanding of the synergistic relationships between water quality, green infrastructure, access to open space—and the social, economic, and human health of communities. Such multi-benefit programs include:

- Elmer Avenue Neighborhood Retrofit (2010, 2012): These "green street" and "green alley" makeovers were designed to enhance the community by reducing flooding and water pollution, increasing green space, and recharging local ground water supplies.
- Disadvantaged Community Outreach Evaluation Study (2014): This study was the first step toward defining the water-related needs of California's least served constituents.
- Water Augmentation Study (Initiated in 2000): This long term research project explores the potential for increasing local water supplies and reducing urban runoff pollution. At the same time, we are evaluating the benefits of enhancing environmental health, increasing green space in our neighborhoods, providing jobs, and increasing our water supply reliability.
- Healthy Communities – Healthy Watersheds (2013): This is an initiative to bridge the communications gap between scientific information and policy development. It is a way to talk about lessons learned, to draw the connection between data and community health, and to use the metrics to inform and prioritize policies.

Mike is a Doctoral Candidate at UCLA Department of Geography, a member of the Water Resources Group of UCLA's Institute of the Environment and Sustainability, an advisor to the Center for Geographical Studies at Cal State Northridge, and a 2013 Switzer Fellow. His academic research investigates aligning new governance models with sustainable practice in coupled human-natural systems, focusing on integrated water management in California.

VII. Past Performance in Reporting on Outputs and Outcomes

The Council has 17 years of experience in obtaining and successfully completing federally and non-federally funded assistance agreements similar in size, scope, and

relevance to the proposed project. For each of these grants, the Council successfully completed the grants and all specified deliverables. The reporting requirements in all agreements follows the same pattern: The project manager submits quarterly progress reports for the agreement documenting work done during the period per the tasks identified in the approved scope of work, along with documentation of applicable matching funds. Documentation includes approved timesheets, brochures, meeting notices, technical reports, photographs, and written narratives. Once reviewed and approved by the Business Manager, the reports are reviewed, approved, and signed by the Executive Director. Deliverables identified in the scope of work for each agreement are submitted upon completion. A final technical report is submitted at the completion of the each agreement to document progress towards the outputs and outcomes. Below are four example projects.

- Indicators of Watershed Health for the Los Angeles River Watershed (#UW-00T82101-0); funded by the US EPA Urban Waters Small Grants. Funded in the amount of $59,925.38. The project period was 10/1/2012 – 1/31/2014
- EPA 2012 Green Infrastructure Community Partners Project (#EP-C-11-009); funded by the US EPA Green Infrastructure Technical Assistance Program. Funded as technical assistance from Tetra Tech. The project period ran from August 2012 to August 2013 and the final report was submitted August 2013.
- Residential Landscape Retrofit Demonstration for Water Conservation and Water Supply (#07FC350227); funded by the US Bureau of Reclamation as part of the larger Elmer Avenue Neighborhood Retrofit demonstration project. Funded in the amount of $75,000, the grant ran from 8/13/2007 – 6/30/2011 and the final report was submitted 10/31/2011.
- Los Angeles Basin Water Augmentation Study Neighborhood Retrofit (# R08AC35243), funded by the U.S. Bureau of Reclamation as part of the demonstration project. Funded for $465,000, the project ran from 8/27/2008 – 6/30/2011 and the final report was submitted 10/31/2011.

VIII. Quality Assurance Project Plan (QAPP) Information

This project will: (1) use existing computer databases containing analytical information, (2) use existing statistical studies, (3) create a new database based on the information gathered, and (4) use this information to make recommendations on environmental decisions. Therefore, we believe a QAPP is necessary, and we are confident that preparing one is within our skill set and can be completed within the existing scope of work.